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ABSTRACT

This final report describes accomplishments of Project Discovery, a 3-year project in Kentucky to assist teachers in creating an innovative learning environment for gifted and talented primary-aged children. Major goals focused on and achieved by the project included: (1) increasing the percentage of disadvantaged students identified as gifted in each of the 13 participating districts; (2) improving teachers' attitudes, knowledge, behavior, and skills in the recognition and nurturing of giftedness in primary-aged children; (3) maintaining or increasing students' self-esteem and increasing their creative thinking, critical thinking, and problem-solving skills; and (4) increasing parents' knowledge and confidence in recognizing and nurturing giftedness in their children. Individual sections of the report provide a description of accomplishments pertaining to each goal and objective; demographic information; a listing of project products; data showing baseline and post-project profiles of gifted identification in participating districts; a listing of areas of giftedness served; a listing of professional development workshops conducted by the project; the project's plan of operation; a list of resources for research with primary-aged children; a directory of the 24 participating schools; summaries of interviews with Project Discovery teachers; and an analysis of student achievement data. (DB)

FINAL REPORT OF PROJECT DISCOVERY

Nurturing Giftedness in All Children Through Original Research

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October, 1995

PREFACE

Project Discovery, a three year initiative by the Ohio Valley Educational Cooperative funded by the Jacob K. Javits Gifted and Talented Students Education Act, U.S. Department of Education was designed to assist teachers in creating an innovative learning environment for primary-aged children. Discovery teachers involved students in independent investigations and the creation of new knowledge through original research. Children were encouraged to be curious and to identify problems and questions raised by their natural curiosity. This allowed students to build skills in problem solving, critical and creative thinking, and independent learning through real life experiences. The project accomplished the following goals:

1. To increase the percentage of disadvantaged students identified as gifted in the grade of formal entry into the gifted program in each district.

2. To improve teachers' attitudes, knowledge, behavior, and skills toward recognizing and nurturing giftedness in primary-aged children.

3. To maintain or increase students' self-esteem and increase the creative thinking, critical thinking and problem solving skills of those students.

4. To increase parents' knowledge and confidence in recognizing and nurturing giftedness in their children.

Staff members of Project Discovery:

Lois Conely Trainer	Chris Luvisi Coordinator/Trainer	Kim Sego Trainer

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PROJECT DISCOVERY
FINAL REPORT
OCTOBER 1, 1995

Accomplishments in Carrying Out goals and Objectives

The following is a summative discussion pertaining to each objective of Project DISCOVERY and the accomplishments made to date.

GOAL

TO NURTURE GIFTEDNESS IN YOUNG STUDENTS (PRIMARY)

Objective #1 ASSESSMENT AND IDENTIFICATION

By June 30, 1995, to increase the proportion of disadvantaged students identified as gifted in the grade of formal entry into the gifted program in each district, as evidenced by district demographic data.

The project has gathered baseline demographic data of the percentage of disadvantaged students currently identified as gifted in the grade of formal entry into the gifted program.

To increase the proportion of disadvantaged students identified as gifted in each district, the project has established an Assessment Committee. The committee has developed an identification instrument, Project DISCOVERY Primary Portfolio Talent Guide, which includes individual task assessment and portfolio assessment, relative to the six Kentucky Learning Goals and Learner Outcomes. The Talent Guide describes levels of identifiable behaviors from Beginning-Developing-Competent-to-Outstanding. The Assessment Committee has selected work samples from assigned performance tasks. Additionally, the project contracted with Dr. Donna Y. Ford-Harris, University of Virginia, National Research Center on Gifted Education to lead to work of the Assessment Committee. The Assessment Committee created a technical assistance handbook which was disseminated April, 1994 to assist OVEC districts in the development of strategies to implement the new state regulation on serving gifted students and to design procedures to increase the number of underserved rural and economically disadvantaged students in member districts. Finally, teachers in the project have received training assisting them in the identification of young children who are disadvantaged and gifted through observations and anecdotal evidence.

Presently, Dr. Joseph Petrosko, University of Louisville is conducting a statistical analysis of the data collected on each student in Year Three to determine the relationship between age, gender, socio-economic status, and achievement. Also, data has been collected to do a pre and post comparison on the number of students identified as gifted in grades 4-6 from 1992 to 1995. This data will allow the project to determine its effect in increasing the number of economically disadvantaged students as gifted. The results of the analysis demonstrates that four hundred eighty-two more students were identified as gifted in 1995 as were 1992 across the thirteen districts. In 1992, only 7% of identified gifted students in grades 4-6 were economically disadvantaged. In 1995, districts reported an increase of over 100% in the number of students from disadvantaged backgrounds identified as gifted. In 1995, 15.4% of all identified gifted students were economically disadvantaged. Furthermore, identification of ethnically diverse gifted students increased from 1.2% in 1992 to 2.7% in 1995. Overall, OVEC school districts have 34% of all students economically disadvantaged and 3.6% of all students belonging to an identified ethnic minority group. See Appendix A for detailed charts outlining the above information.

Objective #2 PROFESSIONAL DEVELOPMENT

By June 30, 1995, to improve teachers' attitudes, knowledge, behavior, and skills in recognizing and nurturing giftedness in primary-aged students, as evidenced by professional development pre- and posttest comparisons, baseline and periodic teacher surveys, teacher interviews, and narrative reports of team progress in facilitating student research as captured on video and critiqued by the team.

To accomplish objective #2, teachers participated in ten days of training during Year One to improve their attitude, knowledge, behavior, and skills in recognizing and nurturing giftedness in primary-aged students. DISCOVERY teachers, Study Team teachers, gifted education resource teachers, and administrators participated in a total of nine workshops during Year 2. During Year 3 teachers participated in eight days of professional development. Data has been collected at each training to measure those variables. A comparison of teachers' attitude, knowledge, behavior, and skills in recognizing and nurturing giftedness in primary-aged students from Year 1 to Year 2 has been provided to OVEC superintendents. Comparisons for all three years are available in the final report. One of the most important concepts stressed in the teachers' professional development is that their judgment about "who is gifted" should be withheld until there is evidence based on performance tasks rather than on "first impressions" from a child's early ability to read or speak well. The project has focused on the need to teach all children problem solving skills, engage all children in critical thinking, and provide the materials and support so that all primary teachers in the project may provide the same challenges to all children in their classes. Teachers are instructed to look at children through the eyes of performance

assessment that is open-ended so that all children are nurtured and have an opportunity to demonstrate what they know and can do. This has been critical to the inclusiveness and success of the project to date.

A comparison of all three years demonstrates a one-to-one correlation with time and learning for teachers in the project. Each year, project teachers reported higher levels of agreement with the thirteen evaluative questions regarding their behavior, beliefs, and project implementation. Appendix B details the three years of professional development and an comparison across the three years.

Objective #3 INDIVIDUALIZED INSTRUCTION

By June 30, 1995, to maintain or increase self-esteem and to increase the creative thinking, critical thinking, and problem solving skills of primary students served by the project as compared to a control group not served by the project, as evidenced by student portfolios evaluated through scoring rubrics and benchmarks.

Project teachers and control group teachers were given four performance tasks to conduct with their primary students during the 1993-94 school year. At the conclusion of the year, teachers brought their scored portfolios to an assessment meeting where they traded portfolios with another teacher for inter-rater-reliability checks. A comparison of the two groups will provide evidence of the differences in relation to creative thinking, critical thinking, problem solving and self-esteem. Data from Year 3 is now being analyzed. During Year 3 teachers kept "Talent Portfolios" on all students. In the portfolio teachers included one piece that was original research while all other pieces reflected the each child's strength(s). Trainers keep journals and record their observations of and conversations with all project teachers that reflect they are teaching critical and creative thinking skills and problem solving through real life situations to a greater degree than had been reported by teachers or observed by trainers prior to the beginning of the project. Additionally, primary teachers have reported that their students enjoy the new activities and teacher feel confident and excited about these experiences enhancing students' self-esteem and internal locus of control. Encouraging life-long learning attitudes increases the chance children will engage in original research.

Appendix C is a discussion by the outside evaluator, Dr. Joseph Petrosko, University of Louisville in a detailed analysis of the performance tasks and portfolio data from student work. In brief, an analysis of the data demonstrates an increase in student performance in both the performance task related to original research and an overall increase in portfolio

scores which is a collection of "best works" by each student. See Appendix C for a detailed discussion of the data.

Objective #4 PARENT INVOLVEMENT

By June 30, 1995, to increase parents' knowledge and confidence in recognizing and nurturing giftedness in their children, as evidenced by baseline and periodic parent surveys and parent interviews.

Parent involvement is critical to both the primary program and Project DISCOVERY. Primary teachers are encouraged to meet regularly with parents to discuss the strengths of their students and to help identify the interests of each child. Two parents are represented on both the Assessment Committee and Advisory council and assisted in the writing of the parent brochure. The brochure, "Discovering the Talents of Your Child," has been developed, field tested with parents, and disseminated to all schools in Project DISCOVERY.

To construct baseline data, a survey of parents whose children are members of DISCOVERY classrooms will be conducted during September, 1994, to measure parents' knowledge and confidence in recognizing and nurturing giftedness in their children. Workshops were conducted at all 16 school this fall to increase parents' knowledge and confidence in recognizing and nurturing giftedness in their children.

Each school collected survey data from parent workshops conducted in Years 2 and 3. Parents reported an increase in their understanding of giftedness, an increased awareness of how to nurture giftedness in their own child, and an increase in communication with their child's teacher. Each parent received a copy of *Discover the Talents of Your Child* produced by Project Discovery. In most cases, teachers reported using the brochure to begin a discussion with each child's parent(s) at the beginning of the school year. A copy of the *Discover the Talents of Your Child* has been provided in previous reports.

DEMOGRAPHIC INFORMATION

Project DISCOVERY participants (students) represent an age range of five years to nine years old. One hundred ten primary classrooms from all thirteen OVEC districts participated during Year 3. Of those students in DISCOVERY classrooms, 34% are economically disadvantaged (1,024), while 3% are from racial groups other than Caucasian. Three percent of DISCOVERY students have one or more handicapping conditions. The 2,601 students who participated in the project are demographically representative of the total districts' population.

PROJECT DISCOVERY 1994-95 DEMOGRAPHIC PROFILE

DISTRICT	SCHOOL	TOTAL SERVED	# ECON. DISADV.	WHITE	BLACK	Asian Pacif	HISP.
Anchorage	Anchorage	36	0	36			
Bullitt	Brooks	67	19	67			
	Maryville	82	40	82			
	Nichols	18	10	18			
	Old Mill	48	8	48			
	Overdale	22	8	22			
	Roby	274	114	273	1		
Carroll	K. Winn	223	117	219	4		
Eminence	Eminence	186	105	166	20		
Gallatin	Gallatin	234	93	225	9		
Grant	Cr. Mt. Zion	45	15	45			
	Dry Ridge	43	13	43			
	Mason-Corinth	46	14	46			
Henry	Campbellsburg	90	34	89	1		
Oldham	Crestwood	98	20	95	2	1	
	Goshen	92	1	91	1		
	La Grange	140	52	135	5		
Owen	Elementary	70	30	67	3		
	Primary	65	41	62	2	0	1
Shelby	Southside	205	78	175	30		
Spencer	Spencer	180	60	177	3		
Trimble	Milton	161	83	161			
West Point	West Point	98	69	98			
St. Francis	St. Francis	78	0	74	1	2	1
TOTALS:							
13 Public School Districts: 1 Private School	24 Schools	2,601 total served during Year 3	1,024 total econ. disadv. served	2,514 white students served	82 black students served	3 Asian-Pacific	2 Hispn

PRODUCTS CREATED BY PROJECT DISCOVERY

Project Discovery Talent Guide

Project Discovery Performance Task Guide

Discover The Talents of Your Child: A Parent Brochure

Real Life Discoveries: A Collection of Student-Directed Research by Primary Aged Children

A Report: " Gifted Disadvantaged and Minority Students: An Issue of Equity and Excellence"

A Report: "Kentucky's Primary School Program: Teacher Self-Report of Implementation of the Critical Attributes Relative to Mix-aged Class Arrangements and Poverty Level"

Project Discovery Technical Assistance Handbook: Discovering the Talents of Rural and/or Economically Disadvantaged Gifted Students

Year One Evaluation Report

Year Two Evaluation Report

Final Report

Table 2

1992-1993 OVEC SCHOOL DISTRICTS' GIFTED IDENTIFICATION MATRIX

GRADES 4-6

DISTRICT ENROLLMENT BY ETHNIC/RACIAL GROUP										GIFTED PROGRAM ENROLLMENT							
SCHOOL DISTRICT	GRADES	TOTAL ENROLLMENT	C	A	A / P	H	O	% ECON. DISADV.	% ETHNIC	GIFTED PROGRAM ENROLLMENT	C	A	A / P	H	O	% ECON. DISADV.	% ETHNIC GIFTED
ANCHORAGE	4-6	142	133	0	3	4	2	1.0	6.3	21	21	0	0	0	0	0	0
BULLITT	4-6	2379	2368	8	1	1	1	34.2	.5	246	246	0	0	0	0	13.8	0
CARROLL	4-6	486	468	18	0	0	0	42.6	3.7	27	27	0	0	0	0	0	0
ELIZABETHTOWN	4-6	418	344	55	13	3	3	30.7	17.7	31	30	1	0	0	0	6.5	3.2
** EMINENCE	3-5	146	124	22	0	0	0	52.4	15.1	25	24	1	0	0	0	0	4.0
GALLATIN	4-6	270	265	4	0	1	0	41.1	1.9	25	24	0	0	1	0	28.0	4.0
HENRY	4-6	481	475	6	0	0	0	44.2	1.2	31	31	0	0	0	0	3.2	0
OLDHAM	4-6	1806	1753	45	3	1	4	16.2	2.9	306	304	0	1	0	1	0	.6
OWEN	4-6	440	434	6	0	0	0	39.0	1.4	33	32	1	0	0	0	3.0	3.0
SHELBY	4-6	1077	946	131	0	0	0	35.2	12.2	67	63	4	0	0	0	10.4	6.0
SPENCER	4-6	350	347	3	0	0	0	41.4	.9	18	18	0	0	0	0	5.5	0
TRIMBLE	4-6	295	295	0	0	0	0	38.3	0	22	22	0	0	0	0	13.6	0
TOTAL	4-6	8290	7952	298	20	10	10	* 34.69	* 4.1	852	842	7	1	1	1	* 7.0	* 1.2

*Race C-Caucasian, A-African-American, H-Hispanic, AP-Asian-Pacific, O-Other

** Eminence Independent identifies only grades 3-5

* Reflects mean for all 12 Districts

1995-96 OVEC SCHOOL DISTRICTS' IDENTIFICATION MATRIX

DISTRICT ENROLLMENT										GIFTED PROGRAM ENROLLMENT							
SCHOOL DISTRICT	GRADES	TOTAL ENROLLMENT	C	A	A / P	H	O	% ECON. DISADV.	% ETHNIC	GIFTED PROGRAM ENROLLMENT	C	A	A / P	H	O	% ECON. DISADV	% ETHNIC GIFTED
Anchorage	4-6	139	136			1	2	1.0	2.0	34	33			1		0.0	3.0
Bullitt	4-6	2329	2313	7	3	6		29.0	.6	202	200	2				15.0	1.0
Carroll	4-6	464	451	12		1		36.0	2.8	38	38					0.0	0.0
Eminence	4-6	144	115	28	1			48.0	20.0	26	24	1	1			27.0	8.0
Gallatin	4-6	275	274	1				39.0	.3	46	45	1				24.0	2.0
Grant	4-6	777	775	2				33.0	.2	66	65		1			15.0	1.5
Henry	4-6	471	457	12		2		40.0	3.0	62	60	2				18.0	3.0
Oldham	4-6	1768	1703	42	3	5	15	14.0	3.6	655	647	4	2		2	0.4	1.0
Owen	4-6	432	425	6		1		34.0	1.6	36	33	2		1		17.0	8.0
Shelby	4-6	1127	992	131	4			25.0	12.0	77	73		4			1.2	5.0
Spencer	4-6	383	379	4				34.0	1.0	48	47	1				12.5	2.0
Trimble	4-6	303	303					34.0	0.0	33	33					6.0	0.0
West Point	4-6	56	56					70.0	0.0	11	11					64.0	0.0
TOTAL	4-6	8668	8379	245	11	16	17	34.0	3.62	1334	1309	13	8	2	2	15.4	2.7

C=Caucasian, A=African American, A-P= Asian Pacific, H=Hispanic, O=Other

STUDENTS SERVED BY OVEC DISTRICTS IN 1994-95 BY AREA OF GIFTEDNESS

SCHOOL DISTRICT	GRADE LEVEL	NUMBER OF STUDENTS SERVED				
		Intellectual	Academic	Creativity	Leadership	Performing Arts
Anchorage	4-6	15	36	17	10	2
Bullitt	4-6	154	63	27	47	35
Carroll	4-6	0	36	3	2	0
Eminence	4-6	27	27	27	27	0
Gallatin	4-6	28	12	24	13	11
Grant	4-6	66	17	12	17	12
Henry	4-6	49	16	12	0	0
Oldham	4-6	263	368	199	198	217
Owen	4-6	36	36	36	24	0
Shelby	4-6	77	77	65	5	13
Spencer	4-6	8	25	9	11	15
Trimble	4-6	13	13	8	15	0
West Point	4-6	11	11	11	11	11
TOTALS		747	737	450	380	316

PROJECT DISCOVERY

YEAR 3 Professional Development Workshops

Administrators:

1994-95 OVEC PRIMARY ROUNDTABLE SCHEDULE

September 15, 1994 November 17, 1994 February 16, 1995 April 20, 1995	Administrators are kept up-to-date through meetings of OVEC Primary Roundtable

All Roundtable meetings will be held at the Oldham County Board Offices and begin at 1:PM.

DISCOVERY Teams and Gifted Education Resource Teachers:

August 1-2, 1994	Facilitating Independent Learning in the Primary Classroom, Dr. George Betts, University of Northern Colorado
August 3-5, 1994	Three days of AIMS (Activities Integrating Math and Science), ACES (Activity Centered Elementary Science) and Project WILD, DISCOVERY Staff
October 8, 1994	Using the DISCOVERY TALENT GUIDE to Recognize and Nurture the Strengths of All Children and Differentiating the Curriculum for Talented Learners through Learning Centers using a Multiple Intelligences Approach and Grouping and Regrouping Strategies, DISCOVERY Staff
November 19, 1994	Teaching Young Children to Be Investigators, Dr. Alane Starko, Eastern Michigan University
April 29, 1995	Inter-rater Reliability Scoring for Project DISCOVERY Talent Guide (8-11:AM)

All meetings will begin at 8:30 and conclude by 2:30 unless otherwise noted and be held at Camden Station Elementary in Crestwood.

Project DISCOVERY
Year 2 Professional Development Workshops

Administrators:

September 16, 1993 November 11, 1993 January 20, 1994 March 17, 1994	Administrators are kept up-to-date through meetings of OVEC Primary Roundtable.

Administrators and Gifted Education Coordinators:

February 18, 1994	Identifying Rural Disadvantaged Students, Dr. H. Spicker

Study Teams, Sparkers and Gifted Resource Teachers:

October 19, 1993	Orientation for Study Teams, DISCOVERY staff
February 12, 1994	Introduction to Used Numbers, Dr. Charles Thompson

DISCOVERY Teams and Gifted Resource Teachers:

October 7, 1993	Nurturing Giftedness Through and Integrated Math/Science Approach, DISCOVERY Staff
October 16, 1993	Designing Invitations for Young Children to Conduct Original Investigations, Dr. Alane Starko
November 13, 1993	Extending Used Numbers to Encourage Original Research, Dr. Charles Thompson
February 12, 1994	Follow-up to Designing Invitations for Young Children to Conduct Original Investigations, Dr. Alane Starko

DISCOVERY and Control Group Teachers:

March 12, 1994	Follow-up to Nurturing Giftedness Through an Integrated Math/Science Approach Through Performance Assessment, DISCOVERY Staff
June 4, 1994 (8:30-11:AM)	Using the DISCOVERY Talent Guide to Nurture and Identify the Strengths of Primary Students, Ken Jones

Note: *Saturday trainings will be held at South Oldham High School in Crestwood. All other trainings will be held at Oldham County Board of Education in Buckner.

Project DISCOVERY

Professional Development Workshops
Year 1

Administrators:		
November 13	1 Day	Orientation for Administrators, Dr. Gina Schack
Teachers of Gifted and Talented:		
November 23	1 Day	"Being an Effective Gifted Resource Person," Dr. Deborah Burns
Teachers of Gifted and Talented and Primary Teachers:		
November 14	1 Day	"Recognizing Giftedness Among Disadvantaged Populations," Dr. Gina Schack
December 5	1 Day	"Making Curriculum and Instruction More Open Ended," Dr. Gina Schack
January 9	1 Day	"Introduction to The Used Number Series: Counting, Sorting, Measuring," Dr. Charles Thompson
January 16	1/2 Day	"Introduction to Portfolio Assessment, Using a Rubric to Score the Portfolio," Ken Jones
February 1	1 Day	"Looking for Data in All the Right Places: Conducting Original Research with Young Investigators," Dr. Gina Schack
February 12	1 Day	Continuation of February 1 Session, Dr. Gina Schack
March 20	1 Day	"Exploring The Used Number Series," Dr. Charles Thompson

May 8	1/2 Day	"Portfolio Assessment: Collaborative Auditing of the Scoring Process," Ken Jones
July 21-23	3 Days	"Discovering Science to Nurture Giftedness in Young Children," Kentucky Department of Fish and Wildlife and Kentucky Science and Technology Council

Control Group Teachers:

January 16	1/2 Day	"Introduction to Portfolio Assessment, Using a Rubric to Score the Portfolio," Ken Jones
May 8	1/2 Day	"Portfolio Assessment: Collaborative Auditing of the Scoring Process," Ken Jones

SUMMARY OF PARTICIPANT RESPONSES TO SURVEY FOR YEARS ONE, TWO, and THREE

QUESTION	YEAR ONE	YEAR TWO	YEAR THREE
The workshop outcomes were clear.	4.12	4.23	4.47
The workshop outcomes were met.	4.06	4.17	4.4
The activities were relevant.	4.09	4.21	4.37
The presenter was organized, informed and supportive.	4.38	4.4	4.45
My concerns were addressed.	3.9	4.03	4.18
I understand the objectives of Project Discovery.	4.15	4.32	4.34
I understand the broadened approach to gifted education.	4.22	4.32	4.34
I understand how this project fits into the primary.	4.22	4.3	4.43
I understand the instructional approach that uses investigations.	3.96	4.15	4.39
I know how to identify and instruct a diverse population of gifted learners in my classroom.	3.65	3.96	4.13
I believe I can nurture giftedness and cause it to emerge.	4.02	4.17	4.25
My teaching behavior nurtures giftedness.	3.91	4.12	4.19
I utilize a variety of strategies and approaches to meet the needs of gifted students in my classroom.	4.02	4.17	4.3

1=DISAGREE, 5=AGREE

Project DISCOVERY Plan of Operation

ACTIVITIES	YEAR	YEAR 2 93-94 95		YEAR 3 94-		ACCOMPLISHMENTS
	MONTH	Oct.-Mar.	Apr.-Sept.	Oct.-Mar.	Apr.-Sept.	
1. ASSESSMENT AND IDENTIFICATION						
A. Project staff gathers input from Project DISCOVERY teachers on ways they have discovered to recognize giftedness in their students.		—	—	—	—	At each of the workshops/trainings, discussions were held with the teachers in ways they have discovered to recognize giftedness in their students. These discussions have evolved from informal observations teachers have made and from assessing specific performance tasks using the rubric developed by the project
B. Assessment and Identification Committee reviews current research on assessment and identification of the gifted.		—	—			Coordinator completed literature review on current research related to the identification of disadvantaged and/or minority gifted students and those with disabilities. Report was disseminated to all OVEC districts and Kentucky Legislative Research Commission.
C. Committee proposes criteria for identifying students as gifted and talented.		—	—	—		Committeereviewed present identification procedures of districts and collaborated with Dr. Donna Y. Ford-Harris, who led the committee's work. The committee completed handbook for OVEC districts to guide them in policies, identification, service delivery options, and evaluation.
D. Committee proposes assessments to be used in the identification of the gifted and talented.		—	—	—		Proposed assessments for the identification of gifted students are were developed by Assessment Committee and were included in the Handbook on Identification.
E. Committee recommends proposed identification criteria and assessments to the Board of each participating district for approval and implementation on a trial basis.			—	—		Proposed recommendations were presented to OVEC superintendents at April, '94 Board meeting based on new state regulation on gifted education.
F. Project staff provides consultation and technical assistance to school administrators in implementing new gifted identification criteria and assessments.			—	—	—	Consultation and technical assistance to participating districts was provided to implement new gifted identification guidelines.
G Project staff gathers feedback on implementation of identification criteria and assessments.				—	—	Analysis of districts' identification procedures and level of implementation was assessed May, '95.
H Assessment and Identification Committee recommends revisions in the identification criteria and assessments for adoption by the Board of each participating district.					—	Report to OVEC Board of Directors provided on status of new guidelines with recommendations as to appropriateness and effectiveness August, 1995.

ACTIVITIES		YEAR / MONTH	YEAR 2 93-94 Oct.-Mar.	YEAR 2 93-94 Apr.-Sept.	YEAR 3 94-95 Oct.-Mar.	YEAR 3 94-95 Apr.-Sept.	ACCOMPLISHMENTS
2.	**PROFESSIONAL DEVELOPMENT**						
	A.	Through application process, Selection Committee chooses 13 ungraded primary teams (hereafter referred to as Discovery Teams) to participate in project and receive training.					Discovery Teams were chosen October, 1992. One hundred five teachers from 13 public school districts and 1 private school ultimately participated in Project Discovery.
	B.	Twenty-six administrators (school principal and district administrator from each district) receive 1 day of orientation to the project.					See Professional Development training for Years 1-3.
	C.	Teachers of the gifted and talented receive 9 days of training during Year 1, 9 days of training during Year 2, and 4 days of training during Year 3.					See Professional Development training for Years 1-3.
	D.	Discovery Teams (3 to 5 teachers each) receive 8 days of training during Year 1, 6 days of training during Year 2, and 4 days of training during Year 3.					See Professional Development training for Years 1-3.
	E.	Teachers in control group receive 2 half days of training in scoring portfolios.					A control group of 25 teachers was identified for Year 2. Control group teachers were invited to participate in project during Year 3.
	F.	Teachers of the gifted and talented serve as resource persons to the Discovery Team in their districts.					See Professional Development training for Years 1-3.
	G.	Teachers in Discovery Teams implement ideas and practices learned in training.					Teachers weregiven specific tasks to conduct in their classrooms following trainings.
	H.	Project staff and teachers of the gifted provide consultation, technical assistance, and model teaching in the classrooms of teachers on Discovery Teams.					Project trainers are in DISCOVERY classrooms 2-4 days per week providing consultation, technical assistance and model teaching. All three trainers journalize after each visit noting observations, reflections on the lesson modeled, and any discussion with the teacher.
	I.	Through application process, Selection Committee chooses one teacher from each Discovery Team to facilitate Study/Action Teams during Years 2 and 3 of the project. (Facilitators are called Team Sparkers.)					Twenty-one classroom teachers were selected as Team Sparkers in May, '93 to facilitate Study/Action Teams during Years 2 and 3 of the project.

		ACTIVITIES	YEAR / MONTH	YEAR 2 93-94 Oct.-Mar.	YEAR 2 93-94 Apr.-Sept.	YEAR 3 94-95 Oct.-Mar.	YEAR 3 94-95 Apr.-Sept.	ACCOMPLISHMENTS
	J.	Team Sparkers receive two days of training in facilitating the study groups of the Study/Action Teams during Year 2.						Training was conducted October, '93 and February '94 for Team Sparkers. This adjustment allows for more preparation and follow-through.
	K.	Through application process, Selection Committee chooses 13 new ungraded primary teams to be added to the project as Study/Action Teams during Year 2.						Fifty-eight new primary teachers were added within the same buildings in which Project DISCOVERY teams reside. Project participants and Team Sparkers worked collaboratively with the new teachers providing training and support.
	L.	Under the guidance of its Team Sparker, each Study/Action Team reviews the research and best practices for identifying and nurturing giftedness in students.						Sparkers provided ongoing assistance and collaboration to Study Teams in their respective schools. Sparkers modeled appropriate practices, collaborated on identification strategies, and how to nurture giftedness in primary children.
	M	Under the guidance of its Team Sparker, each Study/Action Team makes a plan of action for implementing the new ideas and practices.						Team Sparker developed a plan of action May, '94 with Study Team and other DISCOVERY participants to implement new ideas and practices for the '94-95 school year.
	N	Team Sparker enlists expertise and suggestions of his Discovery Team as he assists his Study/Action Team.						Team Sparkers received two days of training and regularly discuss the progress of their Study Team to DISCOVERY staff on a regular basis.
	O	In Year 3, the 13 Study/Action Teams go into "action," implementing the new ideas and practices they have learned.						Implementation August, '94 for 21 Study/Action Teams who will receive 4 days of training. In addition, Project DISCOVERY control group teachers joined project as Discovery Teams in Year 3.
	P.	Teachers of the gifted and talented serve as resource persons to the Study/Action Team in their district.						Teachers of gifted and talented provided ongoing consultation and collaboration to Study Teams beginning September, 1993 and provided ongoing support to same teachers as they went into "action" in Year 3.
	Q	Team Sparkers, project staff, and teachers of the gifted provide consultation, technical assistance, and model teaching in classrooms of teachers on Study/Action Teams.						Sparkers, DISCOVERY staff, and teachers of gifted and talented provided on-site support to teachers in Study Teams as they fully implemented project objectives in Year 3.
3.		**INDIVIDUALIZED INSTRUCTION**						
	A.	Teachers on Discovery Team collect examples of students' work for student portfolios (showing evidence of self-esteem, problem solving skills, critical thinking skills, and creative thinking skills.)						Teachers received training in developing portfolios for students and have collected work samples from students on an ongoing basis. All students in DISCOVERY classrooms created a portfolio of work to be assessed using the DISCOVERY Portfolio Talent Guide.

ACTIVITIES	YEAR / MONTH	YEAR 2 93-94 Oct.-Mar.	YEAR 2 93-94 Apr.-Sept.	YEAR 3 94-95 Oct.-Mar.	YEAR 3 94-95 Apr.-Sept.	ACCOMPLISHMENTS
B.	Teachers begin to look at all students as potentially gifted and experiment with diverse ways of nurturing the giftedness in their students, especially the disadvantaged					Teachers used training provided in workshops to nurture giftedness in students, especially economically disadvantaged.
C.	Teachers engage students in collecting and analyzing data.					Teachers and project trainers engaged students in many activities from the USED NUMBERS series, LOOKING FOR DATA IN ALL THE RIGHT PLACES , Activity Centered Elementary Science, Prject Wild, and Activities Integrating Math and Science (AIMS).
D.	Teachers engage students in doing research activities and original research.					All DISCOVERY teachers have engaged students in research activities. See *Real Life Discoveries*. Teachers of five-year-olds reported fewer successes than other teachers and all teachers reported limited success when students attempted original research. However, all students engaged in research activities, i.e., posing questions, collecting data, displaying data, and posing new questions.
E.	Students plan and initiate their own activities with teacher assistance.					Most students did plan and initiate their own activities with teacher assistance during Year 2 and Year 3
F.	Teachers encourage students to proceed to the highest level possible.					Teachers were successful at opening-up curriculum to allow students to achieve at highest level possible in most classrooms.
G	Teachers provide students with audience for research results (e.g., other students, parents, community).					All schools conducted a Research Fair for students to share their findings with other students, parents, community, etc.
H	Teachers collect research products for students' portfolios.					All teachers collected performance tasks from students which include one research task, "Pose a question and research to get an answer."
I.	Teachers provide appropriate resources and follow-up tailored to students' needs and interests (e.g., inviting community presenters into classroom to address topics of high interest).					Teachers provided opportunities to students through the use of community resources to address topics of high interest. However, management strategies still need to be addressed so teachers move into more facilitative roles.
J.	Discovery Team at each participating school plans a Research Fair.					Team Sparkers and gifted and talented teachers began planning Research Fairs October, '93.
K	Each Discovery school hosts a Research Fair, showcasing students' research activities.					Research fairs were held at each school during Spring, 1994 and 1995.
L.	After the Fair, Discovery Teams discuss what they learned, how to make it better.					Evaluation of Research Fair was conducted by Team Sparkers and gifted and talented teachers.
M	Project staff contracts the production of a professionally-done video to be used at Conferences to highlight the successes of Project DISCOVERY in classrooms.					Advisory Committee decided against developing a video due to cost and instead directed coordinator to produce a book of "research" done by students in the project. *Real Life Discoveries* was produced July, 1995.

ACTIVITIES	YEAR / MONTH	YEAR 2 93-94 Oct.-Mar.	YEAR 2 93-94 Apr.-Sept.	YEAR 3 94-95 Oct.-Mar.	YEAR 3 94-95 Apr.-Sept.	ACCOMPLISHMENTS
4. PARENT INVOLVEMENT						
A. Teachers on Discovery Team hold conferences with each individual parent (home visit, school meeting, or phone) to exchange thoughts on child's interests and strengths and to offer ideas for parent involvement in nurturing child's giftedness.						Teachers have received training in the Kentucky Early Learning Profile which focuses on interviewing the parent and child to identify strengths and interests.
B. Teachers periodically write narrative home to parents about child's unique abilities and gifts, providing concrete suggestions for parent involvement in child's growth.						Teachers wereresponsible for providing qualitative reports to parents on a timely basis and suggestions for parent involvement in child's growth.
C. Project staff produces and distributes brochure for parents, "Discovering Your Child's Special Gifts and Talents."						"Discovering Your Child's Special Gifts and Talents" was produced by project staff and distributed at parent workshops conducted in Year 2 and 3.
D. Teachers encourage parent visitation to the classroom and school activities.						As part of the Primary Program, teachers have an open-door policy for parents to visit classroom and participate in activities.
E. Discovery Teams and teachers of the gifted participate in joint efforts with Kentucky Association for Gifted Education (KAGE) chapters to provide parent education.						Team Sparkers and gifted and talented teachers worked collaboratively with local chapters of the Kentucky Association for Gifted Education to provide parent education during Years 2 and 3.
F. Discovery Teams and teachers of the gifted plan and conduct a parent workshop, "Discovering Your Child's Special Gifts and Talents."						Workshops wereprovided during Years 2 and 3 for parents collaboratively with KAGE Chapters.
G Discovery Teams and teachers of the gifted involve parents in the planning of the Research Fair and invite parents and community to attend.						Team Sparkers and gifted and talented teachers invited parents to help in the planning of the Research Fair and facilitate the involvement of other parents and community members.
H Project Staff invites two parents to serve on the Assessment and Identification Committee.						Parents serving on Advisory Council have agreed to serve on Identification Committee.

ACTIVITIES	YEAR / MONTH	YEAR 2 93-94 Oct.-Mar.	YEAR 2 93-94 Apr.-Sept.	YEAR 3 94-95 Oct.-Mar.	YEAR 3 94-95 Apr.-Sept.	ACCOMPLISHMENTS
I. Project staff invites two parents to serve on the Project DISCOVERY Advisory Council.						Two parents served on Project Discovery Advisory Committee.
J. Each participating school establishes a Parent Resource Center of pamphlets, books, and videos on nurturing giftedness in young children.						Schools were provided $100 each as seed money to establish Parent Resource Centers in Year 2. Schools wereprovided an additional $100 to support their Parent Resource Center in Year 3.
5. DISSEMINATION						
A. Project staff applies to present at various state and national conferences.						Project staff presented at three statewide primary institutes during June and July, 1993, sponsored by the Kentucky Department of Education, and presented at NAGC Conference held in Atlanta, November, '93. Project staff also presented at the Bluegrass Conference on Exceptional Children in the Fall of '93 and the Kentucky Association for Gifted Education March, '94. Staff presented before Annual Javits meeting, Dec., '94.
B. Project staff coordinates with the Kentucky Department of Education to disseminate information about the project through state conferences and newspapers.						Project staff is coordinating efforts with Kentucky Department of Education to disseminate information about Project DISCOVERY in their publication Kentucky Teacher.
C. Project DISCOVERY welcomes visits from teams of interested teachers to observe the project in action in the classroom.						Teams of teachers were invited to see DISCOVERY in action during Year 2 and 3. Project began to facilitate visitations by other school districts beginning March, '94.
D. Project staff applies for approval of the program by the Department of Education's Program Effectiveness Panel and will seek funding for dissemination through NDN.						Project Advisory Committee declined to submit proprosal to NDN. Instead, designed dissemination proposal to USDE in April, '95.
6. PROGRAM EVALUATION						
A. Project staff and evaluator design evaluation tools and procedures.						See outside Evaluators' assessment of qualitative and quantitative data.
B. Project staff and evaluator devise data collection strategy.						See outside evaluators' assessment of qualitative and quantitative data.
C. Project staff and evaluator collect and analyze data.						See table analyzing evaluation data through Year 3 workshops.
D. Project staff revises program activities, goals, and objectives in the light of data.						Plan of operation was revised as needed during the three years of the project.
E. Project staff and evaluator prepare evaluation reports.						Dr. Joe Petrosko was contracted for the life of the grant to prepare evaluation reports. See enclosures.

RESOURCES FOR RESEARCH

Looking for Data in All the Right Places
Alane Starko and Gina Schack
Creative Learning Press
P.O. Box 320
Mansfield Center, CT 06250

Activities Integrating Math and Science (AIMS)
AIMS Education Foundation
P.O. Box 8120
Fresno, CA 93747
1-209-255-4094

Used Numbers: Real Data in the Classroom
Dale Seymour Publications
P.O. Box 10999
Paloalto, CA 94303

Delta Science Modules
P.O. Box 915
Hudson, NH 03051

Activity-Centered Elementary Science (ACES)
167 W. Main Street
Room 904
Lexington, KY 40507
(606)233-3502

Creative Problem Solving for Kids

Scare Yourself to Sleep, Rose Impey

My Great Aunt Arizona

PROJECT DISCOVERY SCHOOLS
(Alphabetical by District)

ANCHORAGE PUBLIC SCHOOLS

Anchorage Elementary School
11400 Ridge Road
Anchorage, KY 40223
(502)245-2121

BULLITT COUNTY PUBLIC SCHOOLS

Brooks Elementary
1800 East Blue Lick Road
Shepherdsville, KY 40165
(502)957-4795

Maryville Elementary
4505 Summers Drive
Louisville, KY 40229
(502)955-6553

Nichols Elementary
10665 Highway 44W
West Point, KY 40177
(502)922-4718

Old Mill Elementary
11540 Highway 44E
Mt. Washington, KY 40047
(502) 955-7696

Overdale Elementary
651 Overdale Drive
Louisville, KY 40229
(502)957-2160

Roby Elementary
1148 Highway 44E
Shepherdsville, KY 40165
(502)955-9200

CARROLL COUNTY PUBLIC SCHOOLS

Kathryn Winn Elementary
9th & Hawkins Streets
Carrollton, KY 41008
(502)732-7090

EMINENCE INDEPENDENT SCHOOLS

Eminence Elementary
200 W. Broadway
Eminence, KY 40019
(502)845-5428

GALLATIN COUNTY PUBLIC SCHOOLS

Gallatin County Elementary
P.O. Box 148
Warsaw, KY 41095
(606)567-4723

GRANT COUNTY PUBLIC SCHOOLS

Crittenden-Mt. Zion Elementary
R.R. 2
Dry Ridge, KY 41035
(606)428-2171

Dry Ridge Elementary
275 School Road
Dry Ridge, KY 41035
(606)824-4484

Mason Corinth Elementary
Rt. 1 Heekin Road
Williamstown, KY 41097

HENRY COUNTY PUBLIC SCHOOLS

Campbellsburg Elementary
P.O. Box 280
Campbellsburg, KY 40011
(502)532-7346

OLDHAM COUNTY PUBLIC SCHOOLS

Crestwood Elementary
6500 W. Highway 146
Crestwood, KY 40014
(502)241-8401

Goshen Elementary
P.O. Box 116
Goshen, KY 40026
(502)228-0101

LaGrange Elementary
500 West Jefferson Street
LaGrange, KY 40031
(502)222-9454

OWEN COUNTY PUBLIC SCHOOLS

Owen County Primary
1925 Highway 22E
Owenton, KY 40359
(502)484-5439

Owen County Elementary
1945 Highway 22E
Owenton, KY 40359
(502)484-3417

SHELBY COUNTY PUBLIC SCHOOLS

Southside Elementary
800 Eighth Street
Shelbyville, KY 40065
(502)633-3452

SPENCER COUNTY PUBLIC SCHOOLS

Spencer County Elementary
P.O. Box 542
Taylorsville, KY 40071
(502)477-3260

ST. FRANCIS SCHOOL

St. Francis School
Highway 42
Goshen, KY 40026
(502)228-1197

TRIMBLE COUNTY PUBLIC SCHOOLS

Milton Elementary
Route 2 Box 75
Milton, KY 40045
(502)268-3322

WEST POINT INDEPENDENT SCHOOLS

West Point Elementary
P.O. Box 367
West Point, KY 40177
(502)922-4797

Report of Interviews with Teachers Participating in Project Discovery: A Project of the Ohio Valley Educational Cooperative (OVEC)

Joseph M. Petrosko

School of Education

University of Louisville

SUMMARY

In February 1994, 13 teachers participating in Project Discovery were interviewed to determine their attitudes and opinions about the project. Teachers represented eight separate school districts (or schools).

Most teachers agreed or strongly agreed that they have an understanding of how to recognize and nurture giftedness in primary aged students. Furthermore, most teachers agreed that they could instruct gifted learners in their classrooms. Ten of 13 teachers interviewed strongly agreed with the statement that they used Project Discovery methods and materials in their classrooms.

A majority of teachers (8 of 13) rated workshops and high or very high in quality. Most suggestions for improvement of workshops dealt with increasing the "hand-on" experiences available to workshop participants. Teachers expressed a great deal of satisfaction with field visits by Kim, Lois, and Chris (12 of 13 respondents rated visits high or very high in quality). Suggestions for improvement dealt mostly with increasing communication regarding visits and improving the fit between activities brought by visitors and ongoing classroom activities.

Regarding future training, several teachers expressed interest in more training dealing with ACES and AIMS. There was very strong endorsement for training on how teachers can manage (i.e., facilitate) independent investigations by students.

This report describes a study of teachers participating in Project Discovery, operated by the Ohio Valley Educational Cooperative (OVEC). Teachers were interviewed to obtain their attitudes and opinions about participation in the project.

Method

Teachers were individually interviewed and were told that information collected would be reported in such a way that no respondent could be identified. Questions consisted of scaled items requiring quantitative judgments and open-ended items in which subjects could respond in their own words. A copy of the three-page interview guide appears in Appendix A.

Data were collected in cooperation with the project director, who, in collaboration with the author of this report, selected teachers that would be representative of all those participating in the project. Interviews occurred on February 12, 1994, a Saturday when workshop training was being offered.

Two workshop experiences took place at a high school located in a participating district. Interviewees left the workshop they were attending and went to the teacher's lounge of the school for the interviews, which lasted 10 to 20 minutes. A total of 13 persons were interviewed. They came from eight separate school districts (or schools).

Results

Most of the persons interviewed had considerable teaching experience. Average number of years experience was 14.4 years.

Teacher abilities and behaviors

Teachers were asked to rate each of four statements on a five step scale with 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree. Shown below is each statement and the mean response of the 13 respondents.

You have an understanding of how to **recognize** giftedness in primary-aged students.

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

Mean = **4.15**

You have an understanding of how to **nurture** giftedness in primary-aged students.

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

Mean = **3.92**

You know how to instruct gifted learners in your classroom.

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

Mean = **4.00**

You have been using some of what you have learned in Project Discovery to instruct gifted learners in your classroom.

Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

Mean = **4.69**

Elaboration of ratings Following the four scaled items, respondents were invited to make comments in their own words: "If you wish, you may explain or elaborate upon any of your answers." Some respondents made general comments. Often these were a follow-up on the previous scaled item they had answered, in which they had been asked whether they were using Project Discovery materials in their classrooms.

All interviewees made at least a general statement that they were using project materials in some way, or were in some way engaging in teaching practices that reflected the project. Spontaneously, some teachers mentioned specific material. These were the number of times that particular items were

mentioned: AIMS, 9; Looking for Data in All the Right Places, 8; ACES, 7; Used Numbers, 6. Below are paraphrases of comments made by teachers in response to the item.

(Note. In the following summary, and all subsequent person-by-person summaries, the number used to identify a teacher is an arbitrarily chosen identifier.)

Teacher	Comments
1	- Project materials fit the curriculum framework being used in the district and state.
	- Have shared materials with non-project teachers
2	- Have changed mind about children's level of ability; believe that children are capable of independent thinking.
4	- Have shared materials with non-project teachers.
	- Have shared materials with teachers of children at other grade levels.
9	- Have found that activities promoted in the project, like interviewing, can work with primary age children.
12	- Project helped confirm pre-existing belief in "underdog" children who are often ignored.
	- Project reaffirmed belief that gifted children need to have more challenging work, not just more work.
	- Project made me realize that gifted children aren't perfect.
13	- Have used methods described in the project more than materials.

Workshops

Teachers were asked to rate workshops on a five step scale of quality with 1 = very low quality, 2 = low quality, 3 = medium quality, 4 = high quality, and 5 = very high quality. Shown below is the mean response of the 13 respondents.

Level of quality of training: the **workshops**

Very low quality	Low quality	Medium quality	High quality	Very high quality
1	2	3	4	5

Mean = **3.69**

Elaboration on the workshop rating Of the 13 teachers, 10 made explicit comments of some kind that were a follow-up to their quality ratings. Of these 10 teachers, 7 were generally positive about one or more workshop experiences. Of the 10, two teachers felt that workshops did not require activities on the part of participants, and two felt that topics were repetitive. Comments are paraphrased below.

Teacher	Comments
1	- Workshop materials allow me to do things with students.
2	- Workshops have been overly philosophical and not as action-oriented as I would like.
3	- Liked Used Numbers, AIMS, Elaine Starko workshop, and ACES.
4	- Used Numbers workshop and Project Wild were good.
5	- Too much lecturing and some topics repeated too much.
6	- Quality is good, but this year's topics are a repeat of last year's.
8	- Feel talked at rather than participating.
10	- Liked Used Numbers and AIMS and ACES training.
11	- There were rough spots in the early workshops, but these were fixed. Things have improved.
12	- Liked Elaine Starko workshop.

Opinions about improving the workshops Of the 13 teachers, 11 made comments or suggestions related to improvement of workshops. Five teachers made comments to the effect that they preferred activities rather than lectures in workshops. Comments are paraphrased below.

Teacher	Comments
1	- Instead of just lecturing during workshops, teachers need time to prepare rubrics. Some individual mentoring on this would be helpful. Would suggest that teachers get a stipend for preparation time, not just for coming to a workshop.
2	- Hands-on work is good. Actually doing something myself (e.g., like in Used Numbers) is good for me.
3	- Rubrics don't work for very young (K-1) children. They are not even at the emergent level.
4	- Some presenters talk down to teachers. The materials are good, but the presentation is sometimes lacking.
5	- Try to stress things that are actually used in the classroom.
6	- Hands-on work is very useful.
8	- The more active the learning, the more I benefit.
9	- The workshops have been very helpful in suggesting techniques for teaching whole classes of children. However, the workshops have not been focusing on finding/identifying the gifted or talented child.
10	- The less successful ones were lectures in which there was no active involvement.
12	- Sometimes fellow workshop participants (the other teachers) have not been very well behaved. Too much irrelevant talking.
13	- Don't like workshops during the school week.

Visits by Kim, Lois, and Chris

Teachers were asked to rate visits to classrooms by Kim, Lois, and Chris on a five step scale of quality with 1 = very low quality, 2 = low quality, 3 = medium quality, 4 = high quality, and 5 = very high quality. Shown below is the mean response of the 13 respondents.

Level of quality of training: **visits** by Kim, Lois, Chris

Very low quality	Low quality	Medium quality	High quality	Very high quality
1	2	3	4	5

Mean = 4.75

Elaboration on the visits rating Of the 13 teachers, six made explicit comments of some kind that were a follow-up to their quality ratings. Of these six teachers, five made generally positive comments about the field visitors. Comments are paraphrased below.

Teacher	Comments
1	- Biggest issue is creative writing: getting kids motivated to write, so that they will do well on the KIRIS exams.
2	- Positive personalities help the program participants.
3	- Very good information obtained; very good communication--it is peer to peer, not top down.
4	- Extremely helpful to everyone--very available and adaptable.
7	- Kim and Lois have visited me and been very helpful.
8	- Visits are strongest point of the project.

Opinions about things to improve visits Of the 13 teachers, eight made positive comments about the visits; comments indicating satisfaction with the services received. Some teachers had specific suggestions, which are paraphrased below.

Teacher	Comments
2	- For planning purposes, would like to have information on what visitors will be doing.
5	- It would help to increase communication about what teachers are doing and how to fit this into what the visitors will be doing.
6	- Increase feedback and increase the turnaround time on questions and information needed by teachers.
10	- Would be good to have visitors interact with smaller groups of children, rather than the whole class.
	- Need help on how to pose good questions as a follow-up to classroom activities.
13	- Try to bring activities when there is a visit. That helps a lot.

Future training

Respondents were asked the following open-ended question: "Generally speaking, what things would be most helpful to you in terms of future training?" Responses are summarized below.

Teacher	Comments
1	- More ACES--how to use ACES.
3	- As someone who was a kindergarten teachers and now teaches K-1, I have to learn how to deal with grade 1.
4	- The next step is focusing on how to completely implement Project Discovery activities in the classroom. For example, how to teach kids good questioning skills.
6	- Providing mentorship for teachers would be helpful--e.g., looking at teacher materials and activities to see if it's on track.
7	- Understanding of rubrics and how to judge material and activities in the teacher's own classroom.
8	- AIMS and ACES training. Teachers who used to teach grade 4 need to know the expectations of primary teachers (now that grade 3 is a combined grade 3-4 within primary).

9 - Would be useful to learn more about tests to identify the disadvantaged gifted (e.g., Raven's). This might include a day of training on using the tool.

10 - More things like AIMS and ACES. It would be good to have better integration of Project Discovery with material coming from the state. Project Discovery has put teachers one step ahead of KERA.

11 - Increase the amount of Project Discovery activities directed to the Language Arts.

12 - Increase science training.

13 - Portfolio tasks--clarify expectations of portfolio tasks.

Possibilities for future training Teachers were asked their opinion of two possible training opportunities. Each is shown below, along with the mean score it obtained. The items were rated on a five step priority scale with 1 = very low priority, 2 = low priority, 3 = medium priority, 4 = high priority, and 5 = very high priority.

Continuing training in: posing questions for original investigations (with Elaine Starko)

Very low priority	Low priority	Medium priority	High priority	Very high priority
1	2	3	4	5

Mean = **3.38**

Training on how teachers can manage (i.e., facilitate) independent investigations by students

Very low priority	Low priority	Medium priority	High priority	Very high priority
1	2	3	4	5

Mean = **4.23**

Conclusions

Data from this interview study revealed high levels of teacher satisfaction with Project Discovery workshops and very high levels of satisfaction with field visits by project staff. Teachers especially liked workshop experiences

with "hands-on" activities and components that could be applied to their own classrooms. They also liked it when Project Discovery staff who visited them brought materials and activities that could be fit into ongoing classroom activities. There was strong endorsement of future training that would help teachers facilitate independent investigations by students.

Acknowledgements

Thanks to Chris Luvisi, the other Project Discovery staff members, and the teachers who participated in this interview study.

Appendix A

Interview Guide

Project Discovery
Teacher Interview Form

J. M. Petrosko
University of Louisville

1. Date of interview:

2. How many years of teaching experience do you have?:

3. Do you have special background or training in any educational area, if so, what is it?:

4. Before Project Discovery began, did you have an interest in gifted/talented education? If so, how did the interest arise?

5. I am going make a series of statements. After each I will ask your opinion of the statement: whether you strongly disagree, disagree, are undecided, agree, or strongly agree with it.

	SD	D	U	A	SA
a. You have an understanding of how to **recognize** giftedness in primary-aged students.	1	2	3	4	5
b. You have an understanding of how to **nurture** giftedness in primary-aged students.	1	2	3	4	5
c. You know how to instruct gifted learners in your classroom.	1	2	3	4	5
d. You have been using some of what you have learned in Project Discovery to instruct gifted learners in your classroom.	1	2	3	4	5

e. If you wish, you may explain or elaborate upon any of your answers

I would like you to rate several things on a 5-step quality rating scale.

1=very low qual. 2=low qual. 3=medium qual. 4=high qual. 5=very high qual.

6. Level of quality of training: the **workshops** 1 2 3 4 5

a. Why did you rate it that way?

b. What specific things would you change to improve the workshops?

7. Level of quality of training: **visits** by Kim, Lois, Chris 1 2 3 4 5

a. Why did you rate it that way?

b. What specific things would you change to improve the visits?

I would like ask your opinion of future training that could be offered as part of Project Discovery.

8. Generally speaking, what things would be most helpful to you in terms of future training?

Below are possibilities for future training.

9. Rate each on how high a priority this would be for you in terms of your own interests and needs.

   1=very low priority 2=low priority 3=medium priority 4=high priority 5=very high priority

a. Continuing training in: posing questions for original investigations (with Elaine Starko) 1 2 3 4 5

b. Training on how teachers can manage independent investigations by students 1 2 3 4 5

Thank you for participating in this interview.

Comparison of Project Discovery Students From Year 2 and Year 3 of the Program:

Ratings of Performance Tasks and Portfolios

Dr. Joseph M. Petrosko

School of Education

University of Louisville

Ohio Valley Educational Cooperative (OVEC)

August 1995

Executive Summary

Comparison of Project Discovery Students From Year 2 and Year 3 of the Program:

Ratings of Performance Tasks and Portfolios

This report gives results of a study comparing data from 1299 children who had experienced Project Discovery in its second year (Year 2) with data from 2553 children who had experienced the program through its third year (Year 3). Most children in the study (95%) were White Non-Hispanic and were from five to eight years of age. Children were compared on two sets of teacher ratings: (a) a set of ratings of a performance task and, (b) a set of ratings of an overall portfolio.

For both performance tasks and portfolios, data consisted of 16 learner outcome ratings that were related to six learning goals derived from Kentucky's 1990 statewide education reform law. For example, learner outcome 1.0 was Finding and Gathering information and Ideas. This was related to Kentucky Learning Goal 1, Applying Basic Skills. Each of the 16 outcomes (designated from 1.0 to 6.3) was rated on a five-step scale, with scale points indicating increasingly greater levels of accomplishment: 0 = Not observed, 1 = Beginning, 2 = Developing, 3 = Competent, 4 = Outstanding.

For the performance task, children in the Year 3 group had significantly higher ratings than children in the Year 2 group on 11 of 16 learner outcomes. For the entire portfolio, Year 3 group children had significantly higher ratings on 15 of 16 learner outcomes. Consistent results were obtained with both univariate and multivariate statistical tests (independent t tests and multivariate analysis of variance).

Year 3 data were analyzed to determine the effects of several background variables on student outcomes. Significant differences were found between two ethnic groups: in some

outcome areas, White Non-Hispanic students had higher means than African-American students. However, there were comparatively few students in the latter category.

Analysis revealed that females had higher scores than males. Furthermore, there were significant differences among children from the lowest economic group (eligible for free lunch), the middle economic group (eligible for reduced cost lunch), and the highest group (not eligible for free or reduced lunch). The higher the economic level, the higher the mean score that was obtained.

Additional research is necessary to more completely describe and more fully explain the effects of ethnicity, economic level, and other variables on the ratings of student work.

The purpose of this report is to describe results of Project Discovery on student outcomes. Children in Year 2 of the program and in Year 3 were given a common performance task and also completed a portfolio of tasks related to research and problem solving. Tasks and portfolios were rated on 16 learner outcomes related to the learning goals adopted in the state as part of the Kentucky Education Reform Act (KERA) of 1990.

Results

Frequency distributions on background variables

Students were measured on several variables related to their personal background or status in the program. Table 1 shows these distributions.

As can be seen in Table 1, over 75% of students were ages 6, 7, or 8, and they were evenly spread out among those ages. Regarding economic level, most children (64%) were rated high, with 8% rated medium and 28% rated low. These designations were categories that were chosen to characterize a child's status in terms of the federally supported school lunch program. They are relative categories--low was lower than medium, and medium was lower than high--but low did not mean extreme poverty and high did not mean extreme affluence. Low meant the child was eligible for free lunch, medium meant eligibility for reduced-cost lunch, and high meant no eligibility for free or discount lunch.

Also shown in Table 1 are data on ethnicity--almost all children (95%) were White Non-Hispanic or African-American (4%). Gender was almost evenly divided between boys and girls. Finally, the variable Group referred to the distinction between what percentage of the data came from children getting Project Discovery activities during Year 2 (37%) and the percentage coming

from children during Year 3 (62%).

In the statistical analyses that follow, some data were removed from the Year 2 data set. Data from subjects who were designated Control (i.e., not participating in Project Discovery) were not analyzed. Thus, the maximum number of subjects for the analyses that follow were: 1299 for Year 2 and 2554 for Year 3.

Table 1

Frequency Distributions on Five Background Variables for Project Discovery Students: Age, Economic Level, Ethnicity, Gender, Group

Variable: **Age**	Value	Frequency	Percent
	9	269	7
	8	1135	28
	7	1057	26
	6	928	23
	5	643	16
	Missing	64	2
		4096	100

Variable: **Economic Level**	Value	Frequency	Percent
	High	2625	64
	Medium	307	8
	Low	1127	28
	Missing	37	1
		4096	100

Variable: **Ethnicity**	Value	Frequency	Percent
	African-American	148	4
	White Non-Hispanic	3875	95
	Other	37	1
	Missing	36	1
		4096	100

Variable: **Gender**	Value	Frequency	Percent
	Female	1946	48
	Male	2112	52
	Missing	38	1
		4096	100

Variable: **Year**	Value	Frequency	Percent
	Year 2	1505	37
	Year 3	2554	62
	Missing	37	1
		4096	100

Differences between the Year 2 and Year 3 groups

Data on performance tasks Table 2 shows mean scores on the performance tasks for Year 2 and Year 3 subjects, and it also shows results of independent t-tests used to compare the means. If the equality of variances assumption of the independent t statistic was met, the t with the standard number of degrees of freedom (df) (i.e., $n_1 + n_2 - 2$) was reported. However, if the assumption was not met, the t with conservative df was reported. This explains why there were large differences among the df values, for example, df = 2658 for the test involving goal 1.1, but df = 1915 for the test of goal 2.0.

The analysis revealed that, using the significance criterion of $p < .05$, there were significant differences in favor of the Year 3 group for 11 of the 16 assessment criteria: criteria numbers 1.1, 1.2, 1.3, 2.0, 3.1, 4.3, 5.1, 5.2, 6.1, 6.2, and 6.3. On two areas, criteria 3.2 and 3.3, mean scores were higher for Year 2 than Year 3.

In addition to the univariate tests reported above, a multivariate analysis of variance (MANOVA) was performed, with the 16 performance task ratings as dependent variables and the Year 2 vs. Year 3 designation as the independent variable. Data from fewer subjects were analyzed because it was necessary to have a complete data set for each subject (i.e., no missing data on any of the 16 dependent variables and the single independent variable). Nevertheless, the data set was substantial, with the n for the MANOVA consisting of 2307 cases. The multivariate Pillai's trace criterion of .06015 was converted to a statistically significant $F(16, 2290) = 9.16$, $p < .0005$. Thus, multivariate results corroborated the differences between the Year 2 and Year 3 groups, found in the results of the separate t-tests.

In addition to the data on the 16 separate ratings for the performance tasks, other data were analyzed. New variables were created that were averages over subsets of the 16 rating scale categories; the separate ratings within each goal were averaged to yield six goal rating items. Table 3 shows means and t-test comparisons for the 6 goal areas. There was considerable consistency between these findings and those of the separate areas shown in Table 6. Three goal areas were statistically significant in favor of the Year 3 group: goal areas 1, 2, and 6. One goal area, number 3, favored the Year 2 group. Goal areas 4 and 5 showed no statistically significant difference (at $p < .05$) between the two groups. A MANOVA on the six average goal areas yielded a multivariate Pillai's trace criterion of .04213 which converted to a statistically significant $F(6, 2383) = 17.47$, $p < .0005$.

Table 2

Mean Scores and Independent t-Tests Comparing Year 2 and Year 3 Subjects for **Performance Tasks** Rated on 16 Learner Outcomes

Goal	Learner Outcome	Year 2 Mean	Year 3 Mean	t	df	p
1.1	Finding and gathering information and ideas	1.79	1.88	-2.37	2658	.02
1.2	Organizing and manipulating information and ideas	1.77	1.85	-2.10	2661	.04
1.3	Expressing information, ideas and emotions	1.67	1.77	-2.74	2661	< .01
2.0	Conceptual understanding	1.65	1.84	-5.16	1915	< .01
3.1	Task commitment	1.91	2.00	-2.41	2685	.02
3.2	Self-concept: self understanding	1.32	1.14	3.78	2047	< .01
3.3	Self-concept: humor	0.89	0.76	2.71	2440	< .01
4.1	Cooperation	1.43	1.41	0.23	1925	.82
4.2	Broadened perspectives: rights and responsibilities	1.14	1.19	-1.05	1874	.29
4.3	Broadened perspectives: different points of view	1.06	1.18	-2.56	1819	.02
5.1	Strategies in problem solving	1.51	1.63	-3.08	2640	< .01
5.2	Reasoning in problem solving	1.43	1.52	-2.32	2659	.02
5.3	Creativity in problem solving	1.43	1.41	0.53	2158	.59
6.1	Integration of ideas	1.19	1.46	-6.14	2604	< .01
6.2	Connection of life and classroom	1.18	1.45	-6.05	2596	< .01
6.3	Learning how to learn	1.54	1.70	-4.46	2646	< .01

Table 3

Mean Scores and Independent t-Tests Comparing Year 2 and Year 3 Subjects for **Performance Tasks** Rated on Six Learner Goals

Kentucky Learning Goal	Year 2 Mean	Year 3 Mean	t	df	p
1. Applying basic skills	1.74	1.83	-2.58	2665	.01
2. Concepts	1.64	1.84	-5.16	1915	< .01
3. Self-sufficiency	1.38	1.30	2.08	2511	< .04
4. Team member	1.21	1.27	-1.29	1882	.21
5. Problem solving	1.46	1.52	-1.69	2663	.09
6. Integration	1.30	1.54	-6.18	2598	< .01

Note. Means for learning goals shown above were obtained by averaging over learner outcomes (see Table 2). Goals and learner outcomes were as follows:

Goal	Learner outcomes averaged
1	1.1 1.2 1.3
2	2.0
3	3.1 3.2 3.3
4	4.1 4.2 4.3
5	5.1 5.2 5.3
6	6.1 6.2 6.3

Data on Portfolios Table 4 shows mean ratings on complete portfolios for Year 2 and Year 3 subjects, and it also shows results of independent t-tests used to compare the means. As with data in Tables 2 and 3, the t statistic was reported with either standard or downward-adjusted degrees of freedom, depending on the outcome of an equality of variances test.

The analysis revealed that, using the significance criterion of $p < .05$, there were significant differences in favor of the Year 3 group for 15 of the 16 assessment criteria. On one criterion, number 3.3, there was no significant difference between the groups. In addition to the univariate tests reported above, a multivariate analysis of variance (MANOVA) was performed, with the 16 portfolio ratings as dependent variables and the treatment vs. control designation as the independent variable. The n for the MANOVA consisted of 2471 cases. The multivariate Pillai's trace criterion was .04483, which converted to a statistically significant $F(16, 2454) = 7.20$, $p < .0005$. The multivariate test corroborated the general superiority of the Year 3 data, found in the results of the separate t-tests.

In addition to the data on the 16 separate ratings for the portfolios, additional data were analyzed. New variables were created that were averages over subsets of the 16 rating scale categories; the separate ratings within each goal were averaged to yield six goal rating items. Table 5 shows means and t-test comparisons for the six goal areas. All goal areas were statistically significant in favor of the Year 3 group. A MANOVA on the six average goal areas yielded a multivariate Pillai's trace criterion of .02414 which converted to a statistically significant $F(6, 2618) = 10.79$, $p < .0005$.

Table 4

Mean Scores and Independent t-Tests Comparing Year 2 and Year 3 Subjects for **Portfolios** Rated on 16 Learner Outcomes

Goal	Learner Outcome	Year 2 Mean	Year 3 Mean	t	df	p
1.1	Finding and gathering information and ideas	1.69	1.85	-4.18	1677	< .01
1.2	Organizing and manipulating information and ideas	1.75	1.86	-3.08	2770	< .01
1.3	Expressing information, ideas and emotions	1.73	1.84	-3.05	2769	< .01
2.0	Conceptual understanding	1.63	1.92	-7.18	1605	< .01
3.1	Task commitment	1.93	2.11	-4.60	2766	< .01
3.2	Self-concept: self understanding	1.60	1.70	-2.20	2726	.03
3.3	Self-concept: humor	1.15	1.19	-0.98	1694	.33
4.1	Cooperation	1.62	1.73	-2.22	1701	.03
4.2	Broadened perspectives: rights and responsibilities	1.43	1.53	-2.13	2654	.03
4.3	Broadened perspectives: different points of view	1.33	1.43	-2.02	2661	.04
5.1	Strategies in problem solving	1.54	1.73	-4.91	1648	< .01
5.2	Reasoning in problem solving	1.53	1.66	-3.31	2761	< .01
5.3	Creativity in problem solving	1.54	1.72	-4.63	2760	< .01
6.1	Integration of ideas	1.28	1.53	-5.75	2728	< .01
6.2	Connection of life and classroom	1.24	1.53	-6.57	2731	< .01
6.3	Learning how to learn	1.49	1.57	-2.08	1790	.04

Table 5

Mean Scores and Independent t-Tests Comparing Year 2 and Year 3 Subjects for **Portfolios** Rated on Six Learner Goals

Kentucky Learning Goal	Year 2 Mean	Year 3 Mean	t	df	p
1. Applying basic skills	1.72	1.84	-3.67	2773	< .01
2. Concepts	1.63	1.91	-7.18	1605	< .01
3. Self-sufficiency	1.57	1.67	-3.12	2735	< .01
4. Team member	1.46	1.56	-2.29	1654	.02
5. Problem solving	1.54	1.70	-4.71	2769	< .01
6. Integration	1.34	1.54	-5.29	2738	< .01

Note. Means for learning goals shown above were obtained by averaging over learner outcomes (see Table 4). Goals and learner outcomes were as follows:

Goal	Learner outcomes averaged
1	1.1 1.2 1.3
2	2.0
3	3.1 3.2 3.3
4	4.1 4.2 4.3
5	5.1 5.2 5.3
6	6.1 6.2 6.3

Effects of additional variables on ratings

Several analyses were undertaken to examine the effects of background variables on ratings of performance tasks and portfolios. These were exploratory and should be followed up with additional tests in the future. They will be explained only briefly.

Only data from Year 3 were analyzed. In a previous report, the author has already discussed analyses for Year 2 data. The dependent variables were: (a) the six performance task averages (similar to the data shown in Table 3), and (b) the six portfolio averages (similar to the data shown in Table 5).

Ethnicity The student sample was overwhelmingly White Non-Hispanic in ethnicity. However, there were 94 African-American children, and it was decided to compare their ratings with those of Whites. On the performance task averages, independent t-test comparisons favored whites ($p < .05$) on goal areas 1, 2, and 5. However, multivariate analysis of variance (MANOVA) did not reveal significant ethnic group differences for the set of six performance task ratings. On the portfolio averages, independent t-test comparisons favored whites ($p < .05$) on goal areas 1, 2, 3, and 5. The multivariate analysis of variance (MANOVA) also showed a significant effect favoring whites.

Gender and economic level A factorial MANOVA was performed using the six performance task averages as the dependent variables and two independent variables: gender and economic level. On the performance task ratings, using .05 as the type I error probability criterion, there was no significant interaction effect, a main effect of gender, and a main effect of economic level. Separate univariate factorial analyses of variance were performed for each of the six dependent variables, and the same pattern existed for each of these: no interaction effect and two main effects. Regarding the main effect of gender, females had higher scores than males. Regarding the main effect of economic

level, scores went up according to the level of the student. In other words, mean scores were lowest for students on free lunch, mean scores were somewhat higher for students on reduced lunch, and mean scores were highest for students who paid for lunch.

When a factorial MANOVA was performed using the six portfolio averages as the dependent variables and gender and economic level as the independent variables, similar results occurred. There was no interaction effect, females has higher scores than males, and more affluent children had higher scores than less affluent children.

More research is warranted on how economic level and the other background variables affect teacher ratings of student performance. Such analyses could include discussion of the following issues: magnitude of effects (i.e., calculation of effect sizes and power analysis), possible biases or other problems due to small n in certain cells, and the effects of missing data on results.

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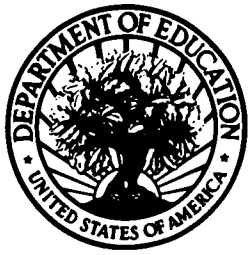

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